

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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In re Letters Patent of:  
Bunpei Toji et al.

Patent No.: 7,006,109

Issued: February 28, 2006

For: DISPLAY EQUIPMENT, DISPLAY METHOD,  
AND STORAGE MEDIUM STORING A  
DISPLAY CONTROL PROGRAM USING  
SUB-PIXELS

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**REQUEST FOR CERTIFICATE OF CORRECTION  
PURSUANT TO 37 CFR 1.323 AND PATENT OFFICE MISTAKE (37 CFR 1.322)**

Attention: Certificate of Correction Branch  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Upon reviewing the above-identified patent, Patentee noted several patent office errors which should be corrected.

The following errors were not in the application as filed by applicant:

In the Application:

Column 1, Line 3, After "2001" insert --,--.

Column 3, Line 65, Delete "(2n+1) x(2m+1)" and insert -- (2n+1) x (2m+1) --.

Column 18, Line 8, In Claim 1, delete "prima" and insert -- primary --.

Column 18, Line 29, In Claim 1, delete “as” and insert -- was --.

Column 18, Line 56, In Claim 4, after “ratio of” insert -- a --.

Column 18, Line 58, In Claim 4, insert --on -- before “results”.

Enclosed please find copies of the Preliminary Amendment, Specification and a copy of the claims.

The following errors were found in the application as filed by applicant. The errors now sought to be corrected inadvertent typographical errors, the correction of which does not involve new matter or require reexamination.

First Page Col. 2 (Abstract), Line 4, After “in a” delete “the”.

First Page Col. 2 (Abstract), Line 16, After “precision” delete -- precision-- was repeated twice.

First Page Col. 2 (Other Publications) Line 9, Delete “pp 1-9” and insert -- pp.1-9--.

First Page Col. 2 (Other Publications) Line 12, Delete “pp 1-7;” and insert --pp. 1-7;--.

Sheet 1 of 17 Box 7 (Fig. 1), Line 1, Delete “extaction” and insert -- extraction--.


Sheet 3 of 17 Box 7 (Fig. 3), Line 1, Delete “extaction” and insert -- extraction--.

Transmitted herewith is a proposed Certificate of Correction effecting such amendment. Patentee respectfully solicits the granting of the requested Certificate of Correction.

The Commissioner is authorized to charge any deficiency of up to \$300.00 or credit any excess in this fee to Deposit Account No. 04-0100. Payment of \$100.00 is included herewith.

Dated: April 24, 2006

Respectfully submitted,

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**UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION**

Page 1 of 2

PATENT NO. : 7,006,109  
APPLICATION NO. : 10/670,913  
ISSUE DATE : February 28, 2006  
INVENTOR(S) : Bunpei Toji et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Application:

First Page Col. 2 (Abstract), Line 4, After "in a" delete "the".

First Page Col. 2 (Abstract), Line 16, After "precision" delete -- precision-- was repeated twice.

Page 2 Col. 2 (Other Publications) Line 6, Delete "pp 1-2" and insert --pp. 1-2--.

Page 2 Col. 2 (Other Publications) Line 9, Delete "pp 1-9" and insert -- pp.1-9--.

Page 2 Col. 2 (Other Publications) Line 12, Delete "pp 1-7;" and insert --pp. 1-7;--.

Sheet 1 of 17 Box 7 (Fig. 1), Line 1, Delete "extaction" and insert -- extraction--.

Sheet 3 of 17 Box 7 (Fig. 3), Line 1, Delete "extaction" and insert -- extraction--.

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Column 1, Line 3, After "2001" insert --,--.

Column 3, Line 65, Delete " $(2n+1) \times (2m+1)$ " and insert --  $(2n+1) \times (2m+1)$  --.

Column 18, Line 8, In Claim 1, delete "prima" and insert -- primary --.

Column 18, Line 29, In Claim 1, delete "as" and insert -- was --.

Column 18, Line 56, In Claim 4, after "ratio of" insert -- a --.

Column 18, Line 58, In Claim 4, insert --on -- before "results".

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**AMENDMENTS TO THE SPECIFICATION**

Pursuant to 37 C.F.R. §1.121, please amend the specification as follows:

Following the title on page 1, please insert the following new text:

This patent application claims the benefit of priority, under 35 U.S.C. §120, as a divisional application of U.S. Patent Application No. 09/907,550, filed July 17, 2001, entitled "DISPLAY EQUIPMENT, DISPLAY METHOD, AND STORAGE MEDIUM STORING A DISPLAY CONTROL PROGRAM USING SUB-PIXELS", hereby incorporated herein by reference, in its entirety.

direction, in accordance with a rectangular reference pattern of a total of  $(2n + 1) \times (2m + 1)$  (where  $n$  and  $m$  are natural numbers) pixels consisting of the target pixel and the pixels that surround the target pixel, and the display control means controls the display device to perform display upon allocating the three-times magnified pattern to the three light-emitting elements that comprise one pixel.

With this arrangement, since the three-times magnified pattern determination means dynamically determines the three-times magnified pattern based on the raster image stored in the original image data storage means, the three-times magnified pattern does not have to be retained statically. Thus in comparison to the case where the three-times magnified pattern is stored statically, the burden placed on the system is lightened to enable application to portable telephones, mobile computers, and other equipment with severe limitations in system resource.

The raster image and the three-times magnified pattern for the raster image need not be known in advance. Thus for a wide range of images, such as a facial portrait image that has been downloaded from a server, a sub-pixel image, which is improved in definition in a practical way, is displayed in a manner that is easy to view.

With a display equipment of a second mode of this invention,  $n = 1$  and  $m = 1$ .

With this arrangement, the reference pattern is a rectangular,  $3 \times 3$  pixel set, the reference pattern can take any of 512 forms, and sub-pixel display is realized using a simple process.

With a display equipment of a third mode of this invention, the raster image stored in the original image data storage means is a bit map font, a bit map

**AMENDMENTS TO THE CLAIMS**

Pursuant to 37 C.F.R. §1.121 the following listing of claims will replace all prior revisions, and listings, of claims in the application.

## Claims 1- 25 (Cancelled)

- Claim 26 (Original) A display method for performing display with a display device, comprising:
- aligning first, second, and third light-emitting elements, which respectively emit light of the three primary colors of R, G, and B, in a fixed order in a first direction to form one pixel;
  - aligning a plurality of pixels in said first direction to form one line;
  - aligning a plurality of lines in a second direction, which is orthogonal to said first direction, to form a display screen, to perform display;
  - acquiring three-times magnified image data, consisting of sub-pixels resulting from magnification of a raster image to be currently displayed by three in said first direction;
  - performing a filtering process on said three-times magnified image data;
  - determining a mixing ratio of foreground color and of background color of each pixel based on results of said filtering process;
  - acquiring said foreground colors and said background colors of respective pixels;



determining a mixed color, in which said foreground color and background color are mixed at a sub-pixel unit, for each pixel in accordance with said mixing ratio that was determined; and performing display on said display device of color sub-pixel display in accordance with said mixed color.

Claim 27 (Original) A display method as set forth in claim 26, wherein the step of determining a mixing ratio includes normalizing values resulting from filtering.

Claim 28 (Original) A display method as set forth in claim 26, wherein said foreground color value, background color value, and mixing ratio are expressed in 8 bits.

Claim 29 (Currently Amended) A method for a storage medium containing a program for performing display with a display device, comprising;

aligning first, second and third three light-emitting elements, which respectively emit light of three primary colors of R, G, and B, in a fixed order in a first direction to form one pixel;

aligning a plurality of said pixels in said first direction to form one line;

aligning a plurality of said lines in a second direction, which is orthogonal to said first direction, to form a display screen;

acquiring three-times magnified image data, consisting of sub-pixels resulting from magnification of a raster image to be currently displayed by three in said first direction;

performing a filtering process on said three-times magnified image data determining a mixing ratio of a foreground color and background color of each pixel based on results of said filtering process;  
acquiring foreground colors and background colors of respective pixels;

determining a mixed color, in which foreground color and background color are mixed at a sub-pixel level, for each pixel in accordance with said mixing ratio; and

displaying color sub-pixel display in accordance with said mixed color.